ITU Emergency Telecommunications Forum Report

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Abstract

Emergency Telecommunications play a critical role in disaster preparedness, warnings, and response; more so than during the recovery and mitigation stages of the Disaster Management (DM) life-cycle[2]. It was evident from the many talks and discussions during the various sessions at ITU Asia-Pacific Regional Multi-stakeholder Forum on Emergency Telecommunications[3] held in Ulaanbaatar, July 08-11, 2011. Japanese Presenters, using the recent Sendai earthquake and tsunami, illustrated the essence of geospatial information in advance planning strengthening evacuation plans; especially for the elderly and physically impaired[4]; timely warnings delivered through prioritized networks can save lives[5], and well managed situational reporting would improve response coordination[6]. These factors were also reiterated by other speakers form the Asia Pacific region, based on their past crises experiences. The absence of proper emergency communication plans standout as a major shortcoming in, almost, every country, which is an important element for multi-stakeholder participation in DM. The LIRNEasia proposed guide using the ITU X.1303 standards: Common Alerting Protocol (CAP) for implementing a country profile and World Meteorological Organization (WMO) proposed administrative procedures for registering alerting authorities (TD1556) formulate a methodology for establishing local and regional emergency communication protocols that are a key part of the required emergency communication plan[7]. The WMO register of alerting authorities also provide a basis for a database of focal points of countries and organization, which is one of the ITU recommended actions for enabling effective regional corporation at all phases of disaster risk reduction (DRR) and DM.

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1 Author's profile on LIRNEasia web" http://www.lirneasia.net/profiles/nuwan-waidyanatha/

2 Image of the DM life-cycle is given in the LIRNEasia project on National Early Warning Systems: http://lirneasia.net/projects/2004-05/national-early-warning-system/

3 The forum announcement, objectives, and program is posted on the ITU website: http://www.itu.int/ITU-D/asp/CMS/Events/2011/disastercomm/index.asp

4 Presentation on "ICT Applications for the People with Disabilities and Ageing as Major Disaster Victims" by Prof. Toshio Obi, Director, APEC e-Government Research Center, Waseda University is posted on the web: http://www.itu.int/ITU-D/asp/CMS/Events/2011/disastercomm/S3-Obi.PDF

5 Presentation on "Disaster Management and ICT - what we have learnt from 3.11" by Mr Masanori Kondo, Director for North America, Europe and ITU Affairs, International Policy Division, Ministry of Internal Affairs and Communications, Japan is posted on the web: http://www.itu.int/ITU-D/asp/CMS/Events/2011/disastercomm/S4A-Japan.pdf

6 Presentation on "Requirements for Life-saving Information to Trigger Right Actions to Save Lives at Severe Disasters: Lessons Learned from 11 March 2011 Disasters in Japan" by Mr Hiroshi Kawamura, President, DAISY Consortium is posted on the web: http://www.itu.int/ITU-D/asp/CMS/Events/2011/disastercomm/S2A-Kawamura.pdf

7 The supplement document introduces the CAP profile and OID registration of alerting authorities procedure: http://www.itu.int/ITU-D/asp/CMS/Events/2011/disastercomm/S3-CAP.pdf

Introduction

LIRNEasia has acquired experience with CAP and Early Warning Systems in two recent projects concerning Sri Lanka and India, one evaluating last-mile warning dissemination (HazInfo, 2005–2008)[8] , the other evaluating a real-time biosurveillance program (RTBP, 2008–2010)[9]. The HazInfo study investigated a preliminary version of a CAP-Profile and the use of CAP in last-mile communications devices. The RTBP study, specific to the Department of Health Services, examined communicating public health events to health workers and officials. These projects gave rise to the 'CAP-enabled Alerting Broker' of the Sahana[10] software. These lessons were shared with delegates at the ITU forum in Ulaanbaatar[3].

Notes from the talks and discussions

Severe snow storms, dust storms, drought, and steppe-fires are the major disasters in Mongolia. A predominant portion of the people (60%) in rural Mongolia still live the nomadic life with a home for each season that suits the weather and gracing lands for the livestock. The collapsible Ger, family, and livestock are their wealth. The outreach of cellular signals are still poor; not only mobile phone coverage but also FM radio. Bridging the last mile, for the thin and sparsely populated populations in the inaccessible terrains,   with affordable technologies is a challenge. The present day Regional Integrated Multi-hazard Early Warning System[11] (RIMES) field tested community-based early warning system uses horses and motorcycles to take the message to the households.

According to team from UN-ESCAP, Asia-Pacific hovers above all with the number of disasters over the past three decades. UNISDR Hyogo Framework for Action has not made much progress over the past four years, stagnant at a achievement score of 3.5 on a scale of 1 to 5. The RIMES, supported by ESCAP, is a framework designed for Least Developed Countries (LCDs) to enable a regional, national, and local end-to-end system. UN-ESCAP also advocates the Hyderabad Action Plan[12] that is designed for least developed countries. ITU has already documented the role of ICT in advancing growth in LCDs[13].

Hydro-meteoroligical events account for more than 90% of the Bangladesh disasters. The worst disaster was the category 3 cyclone: Bhola that killed ~ 500,000 people. Twenty one years later, after implementing the Bangladesh cyclone and flood early warning system, the category 4 cyclone: Gorky, was responsible for only ~138,000 deaths. During Sidr (category 4 cyclone), the deaths were reduced to ~ 3,400. Further deaths could have been prevented if warnings were not ignored, a consequence of

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8   The HazInfo CAP-profile can be found in Technical Annex 15: Guidelines for HIH, HazInfo Technical Report: http://www.lirneasia.net/wp-content/uploads/2008/05/hazinfo-technical-report.pdf

9   The RTBP CAP-profile is described in the WMO paper found at: http://lirneasia.net/wp-content/uploads/2011/04/Gow_RTBP_WMO-brief.pdf

10 Sahana is a free and open-source disaster management system. To learn more visit the website: www.sahanafoundation.org

11 RIMES webstie: http://www.rimes.int/

12 The hyderabad Action Plan (or Hyderabad declaration): www.ifap.ru/pr/2010/n100607a.pdf

13 ITU report on ICT and LCDs 2011: http://www.itu.int/ITU-D/ldc/turkey/docs/The_Role_of_ICT_in_Advancing_Growth_in_LDCs_Trends_Challenges_and_Opportunities.pdf

repeated false tsusami warnings issued two months before[14]. The argument was defended saying that the false warnings were not the only factor but the higher intensity of Sidr (water levels, wind speeds, and impacting areas) were also accountable.

Under the Phase II - Comprehensive Disaster Management Program[15] Bangladesh will have a Disaster Management Information Center and a Network for emergency information exchange. This will replace the currently used UHF/VHF radios with SMS. The UHF/VHF communication are for disseminating the daily weather. The newly proposed system will also use the web, email, cell broadcast, and interactive voice response as channels to communicate information between national, district, and community disaster management entities.

A cell broadcast pilot is in the working for issuing public warnings in Bangladesh. Delivering localized hazard warnings over mobile phones remains an open problem. To overcome this, they have devised a system that uses strings of '+' and '-' characters to illustrate the severity and status of the flood or cyclone threat. A '+++' may indicated that flood water levels were increasing to an extreme level; while '–' may indicate the floods were receding. This is similar to the flags used to indicate the level of the cyclone or flood threat. The need for a globally recognized set of symbols and color codes for warnings and response was mentioned in my WMO Geneva report[16].

Pacific Islands are consistently vulnerable to cyclones and earthquakes. The past year they've been hammered by seven tropical cyclones and six earthquakes (> 5.8). In 2008 December when I spoke on our experience with CAP at an ITU event in Malaysia, the emergency communication protocol was unheard of[17]. Now Pacific Islands has a beta implementation of aggregating GDACS produced CAP alerts in their Pacific Disaster Net[18]. How these alerts get to the last-mile remains unsolved.

"Pacific Islands need siren towers for tsunami warnings", is what the delegates from Fiji and Samoa expressed. The government is relocating people from the coastal belt in to higher inland areas. The sustainability of such a change is questionable as settlements evolve according to the laws of nature; one of them being easy access to the livelihoods (fishing) and resources like drinking water that's easier to find in lower terrains. The UN-ESCAP capacity building modules[19] are guiding them through the DRR and DM process.

The utmost scare in Maldives is the deterioration of the oceanic environment and the slow inundation of sea waters caused by the rising water levels of the ocean. Hence, the Communications Authority of

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14 The blog on cyclone Sidr by Rohan Samarajive; (http://lirneasia.net/2007/11/false-tsunami-warning-costs-lives-in-bangladesh-cyclone/
15 Website of the CDMP: http://www.cdmp.org.bd/
16 Common Alerting Protocol Implementers Workshop, Geneva, April 05-06, 2011 LIRNEasia report: http://lirneasia.net/wp-content/uploads/2011/04/WIS-CAP-report-final-revised.pdf
17 LIRNEasia Blog on Common Alerting Protocol unheard of in Asia-Pacific except Sri Lanka : http://lirneasia.net/2008/12/cap-unheard-asia-except-srilanka/
18 The beta version of the CAP feeds from GDACS: http://pdn.sopac.org/beta/
19 The UN-SECAP modules M9 & M10 specifically designed for disaster and climate adaptation: http://www.unapcict.org/academy/academy-modules/english

Maldives (CAM) is taking a keen interest in understanding the effects of ICT in its contribution to greenhouse gas emissions. Fortunately, only 2% of the greenhouse gas emissions are contributed by ICT. While most of the components require very little power, it is usually the computer or mobile screens (or displays) that takes up most of the power. Dimming one's computer screen and hibernating it while not in use over extensive time can help reduce the greenhouse gas emissions.

In other aspects of DM and DRR, Maldives admits that there is lack of coordination between the multiple stakeholder. At the moment, the Disaster Management Center is being restructured. CAM has enabled priority calling and national roaming that are two areas in which telecom can aid during the time of a disaster. Maldives also agrees that there is a need to harmonize frequencies for emergency communications; such as HF the spectrum that can be dedicated for emergency communications[14]. The 700MHz public safety spectrum[20] is one that is dedicated by the FCC for emergency communications.

PITA recommended that incident management and system coordination among sub regions are important. "It is difficult to find local knowledge or capacity within the PITA" because the brain drain of local capacity leaves them high and dry. A global community like Sahana Software Foundation[21] that has both technical and domain experts can be catalyst to those nations that require assistants in developing their local systems. However, this would mean developing their own PITA local Sahana capacity to engage in actions and discussions with the community.

Recommendations

Towards implementing the national and international emergency communication plan, LIRNEasia recommends that ITU advocate the following steps -
1) Develop a framework using CAP profile development procedures and OID scheme for registering alerting authorities as a basis for implementing the emergency communication plans
2) Activate member states, through the ICT or Telecom regulator/authority to submit an action plan based on the proposed framework in 1) for developing their emergency communication plans (guidelines for developing the action plan would be part of the framework above)
3) Provide consultancy to member states in implementing those developed actionable plans
4) Evaluate the implemented member state emergency communication plans using a formal metric devised by ITU

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20 Description of the 700MHz public safety spectrum: http://transition.fcc.gov/pshs/public-safety-spectrum/700-MHz/
21 Sahana Software Foundation website: http://www.sahanafoundation.org/